

What is claimed is:

1        1.    A system comprising:  
2        a first network interconnect device to couple to a  
3        network;  
4        a second network interconnect device comprising an  
5        uplink port and a device port;  
6        a channel coupling the uplink port to the first  
7        network interconnect device, wherein the first  
8        network interconnect device is operative to  
9        transmit a predetermined signal to the second  
10       network interconnect device, the signal operative  
11       to control a state of the PHY of the second  
12       network interconnect device.

1        2.    A system as defined in Claim 1, wherein the  
2        predetermined signal controls the power state of the PHY of  
3        the second network interconnect device.

1        3.    A system as defined in Claim 2, wherein the  
2        signal is a heartbeat pulse.

1        4.    A system as defined in Claim 1, wherein the  
2        second network interconnect device is a hub.

1        5.    A system as defined in Claim 4, wherein the  
2        channel comprises a coaxial cable.

1           6.    A system as defined in Claim 5, wherein the  
2    signal controls the power state of the PHY of the second  
3    network interconnect device.

1           7.    A system as defined in Claim 6, wherein the  
2    signal is a heartbeat pulse.

1           8.    A system as defined in Claim 4, wherein the  
2    signal controls the power state of the PHY layer of the  
3    hub.

1        9.    A method comprising;  
2        coupling a master network interconnect device to a  
3        network;  
4        coupling a slave network interconnect device to the  
5        master network interconnect device;  
6        coupling the slave network interconnect device to a  
7        network device; and  
8        transmitting a predetermined signal from the master  
9        network interconnect device to the slave network  
10       interconnect device so as to control a state of  
11       the PHY of the network device that is coupled to  
12       the slave network interconnect device.

1        10.   A method as defined in Claim 9, wherein  
2        transmission of the predetermined signal from the master  
3        network interconnect device to the slave network  
4        interconnect device is effective to control the power state  
5        of the PHY of the network device.

1        11.   A method as defined in Claim 9, wherein  
2        transmission of the predetermined signal from the master  
3        network interconnect device to the slave network  
4        interconnect device is caused to occur under program  
5        control.

1        12. A method as defined in Claim 11, wherein  
2        transmission of the predetermined signal from the master  
3        network interconnect device to the slave network  
4        interconnect device is effective to control the power state  
5        of the PHY of the network device.

1        13. A method as defined in Claim 12, wherein the  
2        predetermined signal is a heartbeat signal.

1        14. A method as defined in Claim 9, wherein the slave  
2        network interconnect device comprises a hub having an  
3        uplink port to couple to the master network interconnect  
4        device and having at least one device port to couple to a  
5        network device.

1        15. A method as defined in Claim 14, wherein the  
2        master network interconnect device transmits the  
3        predetermined signal to the hub over a transmission channel  
4        that couples the master network interconnect device to the  
5        uplink port of the hub.

1        16. A method as defined in Claim 15, wherein  
2        transmission of the predetermined signal from the master  
3        network interconnect device to the slave network  
4        interconnect device is caused to occur under program  
5        control.

1           17. A method as defined in Claim 16, wherein  
2   transmission of the predetermined signal from the master  
3   network interconnect device to the slave network  
4   interconnect device is effective to control the power state  
5   of the PHY of the network device.

1           18. A method as defined in Claim 17, wherein the  
2   predetermined signal is a heartbeat signal.

1        19. In a network, an interconnect apparatus  
2 comprising:  
3        a network interconnect device;  
4        a first hub comprising a plurality of device ports and  
5            an uplink port;  
6        a channel coupling the uplink port of the first hub to  
7            the network interconnect device;  
8        a first network device coupled to a device port of the  
9            first hub; and  
10       an article including a machine-readable storage medium  
11            onto which there are written instructions that,  
12            if executed by the network interconnect device,  
13            are effective to cause the network interconnect  
14            device to transmit a predetermined signal over  
15            the channel to the first hub so as to control a  
16            state of the PHY of a network device that is  
17            coupled to a device port of the hub.

1        20. An interconnect apparatus as defined in Claim 19,  
2 wherein transmission of the predetermined signal over the  
3 channel to the first hub is effective to connect/disconnect  
4 the first network device to/from the network.

1        21. An interconnect apparatus as defined in Claim 19,  
2 wherein transmission of the predetermined signal is

3 effective to control the power state of the PHY of the  
4 first network device.

1 22. An interconnect apparatus as defined in Claim 21,  
2 wherein the predetermined signal is a heartbeat signal.

1 23. An interconnect apparatus as defined in Claim 19,  
2 further comprising:

3 a concatenated hub comprising a plurality of device  
4 ports and an uplink port coupled to a device port  
5 of the first hub; and  
6 a second network device coupled to a device port of  
7 the concatenated hub.

1 24. An interconnect apparatus as defined in Claim 23,  
2 wherein transmission of the predetermined signal over the  
3 channel to the first hub is effective to  
4 connection/disconnect the second network device to/from the  
5 network.

1 25. An interconnect apparatus as defined in Claim 24,  
2 wherein transmission of the predetermined signal is  
3 effective to control the power state of the PHY of the  
4 second network device.

1           26. An interconnect apparatus as defined in Claim 23,  
2 wherein the predetermined signal is a heartbeat signal.



3        27. A network comprising:  
4        a first network interface device having a plurality of  
5            output ports, the first network interface device  
6            operable to selectively provide at an output port  
7            a predetermined signal that is effective to  
8            indicate the status condition of a link coupled  
9            to the output port;  
10       a second network interface device having a plurality  
11            of device ports are having an uplink port coupled  
12            through the link to the output port of the first  
13            network interface device;  
14       circuitry coupling the uplink port to at least one  
15            device port so that appearance of the  
16            predetermined signal at the uplink port is  
17            conveyed to the device port; and  
18       a network device coupled to the device port.

1        28. A network as defined in Claim 27, wherein the  
2        predetermined signal is effective to alternatively indicate  
3        to the second network interface an uplink condition or a  
4        downlink condition.

1        29. A network as defined in Claim 28, wherein the  
2        second network interface device is operable to control a  
3        state of the PHY of the network device in response to the  
4        predetermined signal.

1           30. A network as defined in Claim 29, wherein the  
2 second network interface device is operable to control the  
3 power state of the PHY of the network device so that the  
4 network device is caused to be in a power-down state in  
5 response to a link down condition and in a power-up state  
6 in response to a link up condition.